

1st Available Copy
PATENT COOPERATION TREATY

TO

PHILLIP H. WATT
ROOM 900
135 SOUTH LASALLE STREET
CHICAGO, ILLINOIS 60603

UNITED STATES
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY (IPEA/US)

NOTIFICATION OF RECEIPT OF DEMAND
issued pursuant to PCT Rule 64(1)(a) sentence

DATE OF MAILING by International Preliminary
Examining Authority

APPLICANTS OR AGENTS FILE REFERENCE

51247

IDENTIFICATION OF THE INTERNATIONAL APPLICATION

International Application No.

PCT/US91/02311

International Filing Date

03 April 1991

Applicant (Name)

THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC.

NOTIFICATION

The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the above-identified international application:

31 OCT 1991

(date of receipt)

This date of receipt corresponds with the following indicated date:

1. the actual date of receipt of the demand.
2. the date on which the proper corrections to the demand were timely received.

THE INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

Address Only:

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Authorized Officer

ATTN. IPEA/US

Hal Saunders

**PATENT COOPERATION TREATY
DEMAND**

UNDER ARTICLE 31 OF THE PATENT COOPERATION TREATY:

**THE UNDERSIGNED REQUESTS THAT THE INTERNATIONAL APPLICATION SPECIFIED BELOW
BE THE SUBJECT OF INTERNATIONAL PRELIMINARY EXAMINATION
ACCORDING TO THE PATENT COOPERATION TREATY**

Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or Agent's File Reference (indicated by applicant if desired): 51247
International Application No. PCT/US91/02311	International Filing Date 03 April 1991 (03.04.91)	(Earliest) Priority Date 03 April 1990 (03.04.90)
Title of Invention HUMAN NEURONAL NICOTINIC ACETYLCHOLINE RECEPTOR COMPOSITIONS AND METHODS EMPLOYING SAME		
Box No. II APPLICANT(S). Further applicants are indicated on a continuation sheet <input checked="" type="checkbox"/>		
Name and address, including postal code and country: THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC. 505 Coast Boulevard South La Jolla, California 92037-4641 United States of America		
State of nationality: US	State of residence: US	
Telephone number (including area code): 619/452-5892		Telegraphic address:
Telephone number (including area code): 619/452-5892 Telegraphic address: Teleprinter address:		
Name and address, including postal code and country: HARPOLD, Michael Miller 1341 29th Street San Diego, California 92102 United States of America		
State of nationality: US	State of residence: US	
Box No. III AGENT OR COMMON REPRESENTATIVE (IF ANY); ADDRESS FOR NOTIFICATIONS (IN CERTAIN CASES)		
The following named agent or common representative		
1. <input checked="" type="checkbox"/> has been appointed earlier and represents the applicant also for international preliminary examination		
2. <input type="checkbox"/> is hereby appointed and any earlier appointment of an agent is hereby revoked		
3. <input type="checkbox"/> is hereby appointed, in addition to the agent(s) appointed earlier, for the procedure before the International Preliminary Examining Authority		
Name and address, including postal code and country: WATT, Phillip H. Room 900 135 South LaSalle Street Chicago, Illinois 60603 United States of America		If the space below is used instead for an address for notifications, mark here: <input type="checkbox"/>
Telephone number (including area code): 312/372-7842 Telegraphic address: PATLAW CGO		Teleprinter address: 206566
<small>* If residence is not indicated, it will be assumed that the State of residence is the same as the State indicated in the address.</small>		

IPEA/US

31 OCT 1991

Box No. II APPLICANT(S) (CONTINUATION)

Name and address, including postal code and country:

ELLIS, Stephen Bradley
 8939 Oveido Street
 San Diego, California 92129
 United States of America

State of nationality: US

State of residence: * US

Name and address, including postal code and country:

BRUST, Paul
 4019 Carmen Springs Way
 San Diego, California 92130
 United States of America

State of nationality: US

State of residence: * US

Name and address, including postal code and country:

AKONG, Michael
 13160 Jane Court
 San Diego, California 92129
 United States of America

State of nationality: US

State of residence: * US

Name and address, including postal code and country:

VELICELEBI, Gonul
 4688 Tarantella Lane
 San Diego, California 92130
 United States of America

State of nationality: US

State of residence: * US

Name and address, including postal code and country:

State of nationality:

State of residence: *

Name and address, including postal code and country:

State of nationality:

State of residence: *

* If residence is not indicated, it will be assumed that the State of residence is the same as the State indicated in the address.

Box No. IV DECLARATION CONCERNING AMENDMENTS OF THE CLAIMS

Applicant wishes international preliminary examination to start promptly on the basis of the claims

as filed (amendments under Article 19 have not been made and will not be made)

as amended under Article 19

as specified on the attached sheet

Box No. V ELECTION OF STATES

The following designated States are hereby elected (please mark the applicable check-boxes):

Regional Patent

EP European Patent: AT Austria, BE Belgium, DE Germany, DK Denmark, FR France, GB United Kingdom, IT Italy, LU Luxembourg, NL Netherlands, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT (including Chapter II thereof).

OA OAPI Patent: Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Gabon, Mali, Mauritania, Senegal, Togo, and any other State which is a Contracting State of the OAPI and of the PCT (including Chapter II thereof).

National Patent

AT Austria

AU Australia

BB Barbados

BG Bulgaria

BR Brazil

CA Canada

DE Germany

DK Denmark

FI Finland

GB United Kingdom

HU Hungary

JP Japan

KP Democratic People's Republic of Korea

KR Republic of Korea

LK Sri Lanka

LU Luxembourg

MC Monaco

MG Madagascar

MW Malawi

NL Netherlands

NO Norway

PL Poland

RO Romania

SD Sudan

SE Sweden

SU Soviet Union

US United States of America

Space reserved for electing States which have become party to the PCT (including Chapter II thereof) or bound by Chapter II of the PCT after the issuance of this sheet:

Box No. VI SIGNATURE

Phillip H. Watt

(The following is to be filled in by the International Preliminary Examining Authority)

1. Date of actual receipt of DEMAND:

IPEA/US

31 OCT 1991

2. Adjusted date of receipt of DEMAND due to CORRECTIONS under Rule 60.1(b):

1st Available Copy
FEE CALCULATION SHEET
ANNEX TO THE DEMAND FOR
INTERNATIONAL PRELIMINARY EXAMINATION

APPLICANT

THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL
ASSOCIATES, INC.

For use by
IPEA/US

INTERNATIONAL APPLICATION No.

PCT/US91/02311

DATE STAMP OF THE IPEA

IPEA/US

31 OCT 1991

1. PRELIMINARY EXAMINATION FEE

400

P

400.00

11. HANDLING FEE

150

H

150.00

111. TOTAL OF PRESCRIBED FEES SUBMITTED OR TO BE CHARGED TO
DEPOSIT ACCOUNT

Add the amounts entered in Boxes P and H, and enter the total in the
TOTAL Box.

THIS FIGURE IS THE TOTAL AMOUNT OF THE PRESCRIBED FEES
SUBMITTED OR TO BE CHARGED TO THE DEPOSIT ACCOUNT

550

TOTAL

550.00

Payment must be made in United States currency. Checks, postal money orders and bank drafts must be made
payable to the Commissioner of Patents and Trademarks. Payment may also be made by authorization to a
Patent and Trademark Office deposit account.

DEPOSIT ACCOUNT AUTHORIZATION

The IPEA/US is hereby authorized to charge the total fees indicated above to my deposit account.
 The IPEA/US is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to
my deposit account.

06-1135

Deposit Account Number

31 October 1991

Date

Signature

PATENT COOPERATION TREATY

UNITED STATES
INTERNATIONAL SEARCHING AUTHORITY

• Phillip H. Watt
Room 900
135 South LaSalle Street
Chicago, IL 60603

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION
Issued pursuant to PCT Rule 46.1

Inscribe NAME and ADDRESS of the AGENT and if there
is no agent, of the APPLICANT

DATE OF MAILING by the International Searching Authority	
09AUG 1991	
APPLICANT'S OR AGENT'S FILE REFERENCE	
51247	

IDENTIFICATION OF THE INTERNATIONAL APPLICATION

International Application No.	International Filing Date
PCT/US91/02311	03 April 1991

Applicant (Name)

THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC.

NOTIFICATION

The applicant is hereby notified that, in regard to the above-identified international application, this International Searching Authority transmits herewith:

1. the international search report.

THE ATTENTION OF THE APPLICANT IS DRAWN TO THE TIME LIMIT FOR AMENDING BEFORE THE INTERNATIONAL BUREAU ACCORDING TO ARTICLE 19(1) AND RULE 46.1 WHICH RUNS FROM THE DATE OF MAILING OF THE INTERNATIONAL SEARCH REPORT

2. the declaration to the effect that no international search report will be established.

THE ATTENTION OF THE APPLICANT IS DRAWN TO THE TIME LIMIT FOR COMPLYING WITH THE REQUIREMENTS OF ARTICLE 22(2).

Applicant is further notified that, the protest against payment of an additional fee under Rule 40.2(c) together with the decision thereon has been transmitted to the International Bureau together with the request to forward the texts of both the protest and the decision thereon to designated Offices.

THE UNITED STATES INTERNATIONAL SEARCHING AUTHORITY

Address only:
Commissioner of Patents and Trademarks
Box PCT
Washington, D. C. 20231

Authorized Officer

Attn: ISA/US

Mindy B. Fleisher
Mindy B. Fleisher

(vsh)

**PATENT COOPERATION TREATY
INTERNATIONAL SEARCH REPORT**

IDENTIFICATION OF INTERNATIONAL APPLICATION		Applicant's or Agent's File Reference 51247
International Application No. PCT/US91/02311	International Filing Date 03 April 1991	
Receiving Office RO/US	Priority Date Claimed 03 April 1990	
Applicant THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC.		
I. <input type="checkbox"/> CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹ (Observations on supplemental sheet (2))		
II. <input checked="" type="checkbox"/> UNITY OF INVENTION IS LACKING ² (Observations on supplemental sheet (2))		
III. TITLE, ABSTRACT AND FIGURE OF DRAWING		
1. The following indicated items are approved as submitted by the applicant: ³		
<input checked="" type="checkbox"/> Title. <input checked="" type="checkbox"/> Abstract.		
2. The texts established by this International Searching Authority of the following indicated items are set forth below:		
<input type="checkbox"/> Title. <input type="checkbox"/> Abstract.		
3. Text of the abstract continued on supplemental sheet		
a. <input type="checkbox"/> The definitive contents of the abstract are established by this International Searching Authority as proposed in form PCT/ISA/204 previously sent to the applicant.		
b. <input type="checkbox"/> This report is incomplete as far as the abstract is concerned as the time limit for comments by the applicant on the draft prepared by this International Searching Authority has not expired.		
4. Figure to be published with the abstract		
Figure No. _____ <input checked="" type="checkbox"/> None of the figures.		
<input type="checkbox"/> as suggested by the applicant <input type="checkbox"/> because the applicant failed to suggest a figure <input type="checkbox"/> because this figure better characterizes the invention.		

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US91/02311

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC(5): C12Q 1/68; C12N 5/00; C07K 3/00; C07H 15/12

U.S. CL.: 435/6, 69.1, 240.1; 436/79; 530/350; 536/27

II. FIELDS SEARCHED

Minimum Documentation Searched ⁷

Classification System	Classification Symbols
U.S.	536/27; 435/6, 69.1, 240.1; 530/350; 436/79

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched ⁸

APS, STN

III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	The EMBO Journal, Volume 9, No. 7, issued 1990, BEESON ET AL., "The Human Muscle Nicotinic Acetylcholine Receptor Alpha-Subunit Exists as Two Isoforms: A Novel Exon" pages 2101-2106.	1-52
X	Nucleic Acids Research, Volume 18, No. 14, issued 1990, ANAND ET AL., "Nucleotide Sequence of the Human Nicotinic Acetylcholine Receptor Beta 2, Subunit Gene", page 4272.	1-52

* Special categories of cited documents: ¹⁰

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

Date of Mailing of this International Search Report

16 July 1991

09 AUG 1991

International Searching Authority

Signature of Authorized Officer

ISA/US

Mindy B. Fleisher

(vsh)

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE¹

This international search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. Claim numbers because they relate to subject matter^{1,2} not required to be searched by this Authority, namely:

2. Claim numbers because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out^{1,2}, specifically:

3. Claim numbers _____, because they are dependent claims not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING²

This International Searching Authority found multiple inventions in this international application as follows:

(See Attached)

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application. **Telephone practice**

2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

- The additional search fees were accompanied by applicant's protest.
- No protest accompanied the payment of additional search fees.

Part VI.

- I. Claims 1-7, 9, 52 comprising DNA, mRNA, and method of use classified in class 536 subclass 27 and class 435 subclass 6.
- II. Claim 8 comprising protein classified in class 530 subclass 350.
- III. Claims 10-26 comprising cells classified in class 435 subclass 240.1.
- IV. Claims 27-29 comprising receptor (at least two subunits) classified in class 530 subclass 350.
- V. Claims 30-31, 37-41, and 45 comprising a method of assaying classified in class 435 subclass 6.
- VI. Claims 32, 42-44, and 46-51 comprising a method of determining classified in class 436 subclass 70.
- VII. Claims 33-36 comprising a method of making cells classified in class 435 subclass 69.1.

INTERNATIONAL BUREAU

UNITED STATES RECEIVING OFFICE (RO/US)

NOTIFICATION OF POWER OF ATTORNEY OR
REVOCATION OF POWER OF ATTORNEY

Issued pursuant to PCT Rule 90.3(b) and 90.4(b)

DATE OF MAILING BY THE RECEIVING OFFICE

08 OCT 1991

IDENTIFICATION OF THE INTERNATIONAL APPLICATION

INTERNATIONAL APPLICATION NUMBER

INTERNATIONAL FILING DATE

PCT/US91/02311

03 APRIL 1991

APPLICANT (name)

THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC.

NOTIFICATION

This receiving Office hereby gives notice of the receipt of the following indicated document (a copy of which is annexed hereto):

- power of attorney (Rule 90.3(b)).
- revocation of power of attorney (Rule 90.4(b)).

This notification is sent to the above addressee in its capacity as the:

International Searching Authority
 International Bureau

UNITED STATES RECEIVING OFFICE

ADDRESS ONLY:

COMMISSIONER OF PATENTS AND TRADEMARKS
Box PCT
Washington, D. C. 20231

AUTHORIZED OFFICER

Attn: RO/US

SEARCH COPY

**INTERNATIONAL APPLICATION
UNDER THE
PATENT COOPERATION TREATY**

REQUEST

THE UNDERSIGNED REQUESTS THAT THE PRESENT
INTERNATIONAL APPLICATION BE PROCESSED
ACCORDING TO THE PATENT COOPERATION TREATY

(The following is to be filled in by the receiving Office)
**INTERNATIONAL
APPLICATION No:**

PCT/US 91/02311

**INTERNATIONAL
FILING DATE:**

03 APR 1991**PCT INTERNATIONAL
APPLICATION**

(Stamp)
Name of receiving Office and "PCT International Application"

Applicant's or Agent's File Reference
(indicated by applicant if desired) **51247**

Box No. I TITLE OF INVENTION

**HUMAN NEURONAL NICOTINIC ACETYLCHOLINE RECEPTOR
COMPOSITIONS AND METHODS EMPLOYING SAME**

Box No. II APPLICANT (WHETHER OR NOT ALSO INVENTOR); DESIGNATED STATES FOR WHICH HE/SHE/IT IS APPLICANT. Use this box for indicating the applicant or, if there are several applicants, one of them. If more than one person (includes, where applicable, a legal entity) is involved, continue in Box No. III.

The person identified in this box is (check one only): applicant and inventor* applicant only

Name and address: * * * THE SALK INSTITUTE BIOTECHNOLOGY/
INDUSTRIAL ASSOCIATES, INC.
505 Coast Boulevard South
La Jolla, California 92037-4641
United States of America

Telephone number: **619/452-**
(including area code) **5892**

Telegraphic address:

Teleprinter address:

Country of nationality: **US**

Country of residence: * * *

USThe person identified in this box is *applicant* for the purposes of (check one only):

all designated States all designated States except
the United States of America the United States
of America only the States indicated
in the "Supplemental Box"

Box No. III FURTHER APPLICANTS, IF ANY; (FURTHER) INVENTORS, IF ANY; DESIGNATED STATES FOR WHICH THEY ARE APPLICANTS (IF APPLICABLE). A separate sub-box has to be filled in in respect of each person (includes, where applicable, a legal entity). If the following two sub-boxes are insufficient, continue in the "Supplemental Box," (giving there for each additional person the same indications as those requested in the following two sub-boxes) or by using a "continuation sheet."

The person identified in this sub-box is (check one only): applicant and inventor* applicant only inventor only*

Name and address: * * * HARPOLD, Michael Miller
1341 29th Street
San Diego, California 92102
United States of America

If the person identified in this sub-box is *applicant* (or *applicant and inventor*), indicate also:Country of nationality: **US** Country of residence: * * * **US**and whether that person is *applicant* for the purposes of (check one only):

all designated States all designated States except
the United States of America the United States
of America only the States indicated
in the "Supplemental Box"

The person identified in this sub-box is (check one only): applicant and inventor* applicant only inventor only*

Name and address: * * * ELLIS, Stephen Bradley
8939 Oveido Street
San Diego, California 92129
United States of America

If the person identified in this sub-box is *applicant* (or *applicant and inventor*), indicate also:Country of nationality: **US** Country of residence: * * * **US**and whether that person is *applicant* for the purposes of (check one only):

all designated States all designated States except
the United States of America the United States
of America only the States indicated
in the "Supplemental Box"

Indicated as "applicant and inventor" or as "inventor only" is not an *inventor* for the purposes of all the designated States.
* * * indicates in the "Supplemental box."

Of a natural person by giving his/her family name first followed by the given name(s). Indicate the name of a legal entity by designation. In the address, include both the postal code (if any) and the country (name).

If not indicated, it will be assumed that the country of residence is the same as the country indicated in the address.

Box No. III **CONTINUATION (IF REQUIRED)**. **FURTHER APPLICANTS, IF ANY; (FURTHER) INVENTORS, IF ANY; DESIGNATED STATES FOR WHICH THEY ARE APPLICANTS (IF APPLICABLE).** A separate sub-box has to be filled in in respect of each person (includes, where applicable, a legal entity).

The person identified in this sub-box is (check one only): applicant and inventor* applicant only inventor only*

Name and address:** BRUST, Paul
4019 Carmen Springs Way
San Diego, California 92130
United States of America

If the person identified in this sub-box is *applicant (or applicant and inventor)*, indicate also:

Country of nationality: US Country of residence:*** US

and whether that person is *applicant* for the purposes of (check one only):

all designated States all designated States except the United States of America the United States of America only the States indicated in the "Supplemental Box"

The person identified in this sub-box is (check one only): applicant and inventor* applicant only inventor only*

Name and address:** AKONG, Michael
13160 Jane Court
San Diego, California 92129
United States of America

If the person identified in this sub-box is *applicant (or applicant and inventor)*, indicate also:

Country of nationality: US Country of residence:*** US

and whether that person is *applicant* for the purposes of (check one only):

all designated States all designated States except the United States of America the United States of America only the States indicated in the "Supplemental Box"

The person identified in this sub-box is (check one only): applicant and inventor* applicant only inventor only*

Name and address:** VELICELEBI, Gonul
4688 Tarantella Lane
San Diego, California 92130
United States of America

If the person identified in this sub-box is *applicant (or applicant and inventor)*, indicate also:

Country of nationality: US Country of residence:*** US

and whether that person is *applicant* for the purposes of (check one only):

all designated States all designated States except the United States of America the United States of America only the States indicated in the "Supplemental Box"

The person identified in this sub-box is (check one only): applicant and inventor* applicant only inventor only*

Name and address:**

If the person identified in this sub-box is *applicant (or applicant and inventor)*, indicate also:

Country of nationality: Country of residence:***

and whether that person is *applicant* for the purposes of (check one only):

all designated States all designated States except the United States of America the United States of America only the States indicated in the "Supplemental Box"

* If the person indicated as "applicant and inventor" or as "inventor only" is not an *inventor* for the purposes of all the designated States, give the necessary indications in the "Supplemental box."

** Indicate the name of a natural person by giving his/her family name first followed by the given name(s). Indicate the name of a legal entity by its full official designation. In the address, include both the postal code (if any) and the country (name).

*** If residence is not indicated, it will be assumed that the country of residence is the same as the country indicated in the address.

If this continuation sheet is not used, it need not be included in the Request.

Box No. IV AGENT (IF ANY) OR COMMON REPRESENTATIVE (IF ANY); ADDRESS FOR NOTIFICATIONS (IN CERTAIN CASES). A common representative may be appointed only if there are several applicants and if no agent is or has been appointed; the common representative must be one of the applicants. The following person (includes, where applicable, a legal entity) is hereby/has been appointed as agent or common representative to act on behalf of the applicant(s) before the competent International Authorities:

Name and address, including postal code and country:

WATT, Phillip H.

Room 900

135 South LaSalle Street
Chicago, Illinois 60603
United States of America

If the space below is used instead for an address for notifications, mark here

Telephone number: 312/372-7842 Telegraphic address: PATLAW CGO Teleprinter address: 206566

Box No. V DESIGNATION OF GROUPS OF STATES OR STATES⁽¹⁾; CHOICE OF CERTAIN KINDS OF PROTECTION OR TREATMENT. The following designations are hereby made (please mark the applicable check-boxes):

Regional Patent

EP European Patent⁽²⁾: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, DE Germany (Federal Republic of), DK Denmark, ES Spain, FR France, GB United Kingdom, IT Italy, LU Luxembourg, NL Netherlands, SE Sweden, GR Greece and any other State which is a Contracting State of the European Patent Convention and of the PCT

OA OAPI Patent: Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Gabon, Mali, Mauritania, Senegal, Togo, and any other State which is a Contracting State of OAPI and of the PCT; if other OAPI title desired, specify on dotted line⁽³⁾:

National Patent (if other kind of protection or treatment desired, specify on dotted line⁽³⁾)

<input type="checkbox"/> AT Austria ⁽³⁾	<input type="checkbox"/> KR Republic of Korea ⁽³⁾
<input type="checkbox"/> AU Australia ⁽³⁾	<input type="checkbox"/> LK Sri Lanka.....
<input type="checkbox"/> BB Barbados.....	<input type="checkbox"/> LU Luxembourg ⁽³⁾
<input type="checkbox"/> BG Bulgaria ⁽³⁾	<input type="checkbox"/> MC Monaco ⁽³⁾
<input type="checkbox"/> BR Brazil ⁽³⁾	<input type="checkbox"/> MG Madagascar.....
<input checked="" type="checkbox"/> CA Canada.....	<input type="checkbox"/> MW Malawi ⁽³⁾
<input type="checkbox"/> CH and LI Switzerland and Liechtenstein.....	<input type="checkbox"/> NL Netherlands.....
<input type="checkbox"/> DE Germany (Federal Republic of) ⁽³⁾	<input type="checkbox"/> NO Norway.....
<input type="checkbox"/> DK Denmark.....	<input type="checkbox"/> RO Romania.....
<input type="checkbox"/> ES Spain ⁽³⁾	<input type="checkbox"/> SD Sudan.....
<input type="checkbox"/> FI Finland.....	<input type="checkbox"/> SE Sweden.....
<input type="checkbox"/> GB United Kingdom.....	<input type="checkbox"/> SU Soviet Union ⁽³⁾
<input type="checkbox"/> HU Hungary.....	
<input checked="" type="checkbox"/> JP Japan ⁽³⁾	<input checked="" type="checkbox"/> US United States of America ⁽³⁾
<input type="checkbox"/> KP Democratic People's Republic of Korea ⁽³⁾	continuation-in-part.....

Space reserved for designating States (for the purposes of a national patent) which have become party to the PCT after the issuance of this sheet:

(1) The applicant's choice of the order of designations may be indicated by marking the check-boxes with sequential arabic numerals (see also the "Notes to Box No. V").

(2) The selection of particular States for a European patent can be made upon entering the national (regional) phase before the European Patent Office (see also the "Notes to Box No. V").

(3) If another kind of protection or a title of addition or, in the United States of America, treatment as a continuation or a continuation-in-part is desired, specify according to the instructions given in the "Notes to Box No. V."

Supplemental Box. Use this box in the following cases:

(i) if more than three persons are involved as applicants and/or inventors; in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III;

(ii) if, in Box No. II or any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box." is checked; in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the country or countries (or EP or OA, if applicable) for the purposes of which he/she/it is applicant;

(iii) if, in Box No. II or any of the sub-boxes of Box No. III, a person indicated as "applicant and inventor" or "inventor only" is not inventor for the purposes of all designated States or for the purposes of the United States of America; in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor and, next to such name, the country or countries (or EP or OA, if applicable) for the purposes of which the named person is inventor;

(iv) if there is more than one agent and their addresses are not the same; in such case, write "Continuation of Box No. IV" and indicate for each additional agent the same type of information as required in Box No. IV;

(v) if, in Box No. V, the name of any country (or OAPI) is accompanied by the indication "patent of addition," "certificate of addition," or "inventor's certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "Continuation" or "Continuation-in-part"; in such case, write "Continuation of Box No. V" and the name of each country involved (or OAPI), and after the name of each such country (or OAPI), the number of the parent title or parent application and the date of grant of parent title or filing of parent application;

(vi) if there are more than three earlier applications whose priority is claimed; in such case, indicate "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;

(vii) if, in any of the Boxes, the space is insufficient to furnish all the information; in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient;

(viii) if the applicant intends to claim, in respect of any designated Office, the benefit of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty; in such case, write "Statement Concerning Non-prejudicial Disclosures or Exceptions to Lack of Novelty" and furnish that statement below.

IV Agent (continued)

Fitch, Jr., Morgan L.
 Even, Francis A.
 Tabin, Julius
 Flannery, John F.
 Schumacher, Robert K.
 Jones, Robert B.

Schumann, James J.
 Pinkstaff, R. Steven
 Hamill, James J.
 Levstik, Timothy E.
 Wakely, Richard B.
 Shipley, Joseph E.

All of the above are attorneys of the firm, Fitch, Even, Tabin & Flannery. Address and telephone number are indicated in Box IV.

Continuation of Box No. V

United States of America, Application No. 504,455
 filed 3 April 1990 (03.04.90)

If this Supplemental Box is not used, this sheet need not be included in the Request.

Box No. VI PRIORITY CLAIM (IF ANY). The priority of the following earlier application(s) is hereby claimed:

Country (country in which it was filed if national application; one of the countries for which it was filed if regional or international application)	Filing Date (day, month, year)	Application No.	Office of Filing (fill in only if the earlier application is an international application or a regional application)
(1) US	03 April 1990 (03.04.90)	504,455	
(2)			
(3)			

(Letter codes may be used to indicate country and/or Office of filing)

When the earlier application was filed with the Office which, for the purposes of the present international application, is the receiving Office, the applicant may, *against payment of the required fee*, ask the following:

the receiving Office is hereby requested to prepare and transmit to the International Bureau a certified copy of the above-mentioned earlier application/of the earlier applications identified above by the numbers (insert the applicable numbers)

Box No. VII EARLIER SEARCH (IF ANY). Fill in where a search (international, international-type or other) by the International Searching Authority has already been requested (or completed) and the said Authority is now requested to base the international search, to the extent possible, on the results of the said earlier search. Identify such search or request either by reference to the relevant application (or the translation thereof) or by reference to the search request.

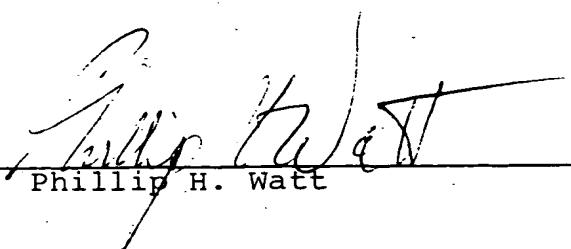
International application number or number and country (or regional Office) of other application:

International/regional/national filing date

Date of request for search:

Number (if available) given to search request:

Box No. VIII SIGNATURE OF APPLICANT(S) OR AGENT



Phillip H. Watt

If the present Request form is signed on behalf of any applicant by an agent, a separate power of attorney appointing the agent and signed by the applicant is required. If in such case it is desired to make use of a general power of attorney (deposited with the receiving Office), a copy thereof must be attached to this form.

Box No. IX CHECK LIST (To be filled in by the Applicant)

This international application contains the following number of sheets:

1. request	5	sheets
2. description	32	sheets
3. claims	12	sheets
4. abstract	1	sheets
5. drawings	11	sheets
Total	61	sheets

Figure number 1 of the drawings (if any) is suggested to accompany the abstract for publication.

This international application as filed is accompanied by the items checked below:

- separate signed power of attorney
- copy of general power of attorney (Sibia)
- priority document(s) (see Box No. VI)
- receipt of the fees paid or revenue stamps
- cheque for the payment of fees
- request to charge deposit account
- other document (specify) Transmittal Letter Fee Calculation Sheet; Informal Drawings; Assignment

(The following is to be filled in by the receiving Office)

1. Date of actual receipt of the purported international application

05 Rec'd PCT/PTO

03 APR 1991

2. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:

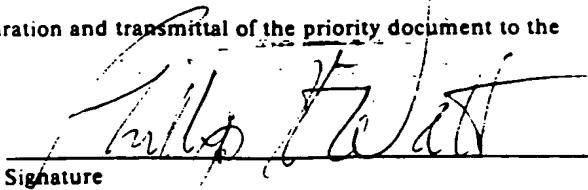
3. Date of timely receipt of the required corrections under Article 11 of the PCT.

4. Drawings Received No Drawings

(The following is to be filled in by the International Bureau)

Date of receipt of the record copy:

THIS SHEET IS NOT PART OF AND DOES NOT COUNT AS A SHEET OF THE INTERNATIONAL APPLICATION

APPLICANT THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC.		This column for use by receiving Office		
INTERNATIONAL APPLICATION NUMBER (to be filled in by the receiving Office) PCT/US 91/02311	DATE STAMP OF RECEIVING OFFICE 03 MAR 1991			
FEE CALCULATION SHEET ¹				
FEES SUBMITTED OR TO BE CHARGED TO DEPOSIT ACCOUNT				
I. TRANSMITTAL FEE ²		170	T	170.00
II. SEARCH FEE ³		380	S	380.00
<p>International search to be effected by ISA/US..... (Please indicate, but only if the applicant has the choice between two or more International Searching Authorities, the name of the Authority to which the international application is to be transmitted. Note that the amount of the search fee depends on the identity of the International Searching Authority.)</p>				
III. INTERNATIONAL FEE ⁴				
<p>BASIC FEE⁵ Indicate the number of SHEETS contained in the international application 61.....</p>				
first 30 sheets		559	b ₁	559.00
remaining 31 sheets x 11		341	b ₂	341.00
Add amounts entered in boxes b ₁ and b ₂ and enter total in box B. This figure is the amount of the BASIC FEE		900	B	900.00
<p>DESIGNATION FEES⁶ Indicate the number of NATIONAL PATENTS which have been sought and multiply by the amount of the designation fee.</p>				
3 x 135		405	d ₁	405.00
1 x 135		135	d ₂	135.00
Add amounts entered in boxes d ₁ and d ₂ and enter total in box D (if that total exceeds the figure which corresponds to the amount of the designation fee multiplied by ten, enter the latter figure in Box D). This figure is the amount of the DESIGNATION FEES		540	D	540.00
Add amounts entered in boxes B and D, and enter total in box I. This figure is the amount of the INTERNATIONAL FEE		1440	I	1440.00
IV. TOTAL OF PRESCRIBED FEES SUBMITTED OR TO BE CHARGED TO DEPOSIT ACCOUNT				
Add amounts entered in boxes T, S and I, and enter total in the TOTAL box. This figure is the total amount of the PRESCRIBED FEES SUBMITTED OR TO BE CHARGED TO DEPOSIT ACCOUNT		1990	TOTAL	\$ 1990.00
<p>THE APPLICANT MAY PAY THE PRESCRIBED FEES BY (CHEQUE, POSTAL MONEY ORDER, BANK DRAFT, CASH, REVENUE STAMPS, COUPONS, ETC.). PAYMENT SHOULD BE MADE IN THE PRESCRIBED CURRENCY TO THE ACCOUNT OF, ACCOUNT INDICATED BELOW OF, ORDER OF THE RECEIVING OFFICE. PAYMENT MAY ALSO BE MADE BY AUTHORIZATION TO CHARGE A DEPOSIT ACCOUNT AT THE RECEIVING OFFICE IF THE LATTER HAS A DEPOSIT ACCOUNT SYSTEM.</p>				
<p>DEPOSIT ACCOUNT AUTHORIZATION⁷</p> <p><input type="checkbox"/> The RO/ US is hereby authorized to charge the total fees indicated above to my deposit account.</p> <p><input checked="" type="checkbox"/> The RO/ US is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.</p> <p><input checked="" type="checkbox"/> The RO/ US is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.</p>				
06-1135 Deposit Account Number	3 April 1991 Date	Signature 		
Form PCT/RO/101 (Annex) (January 1990) See notes on reverse side				

• PHILIP H. WATT
ROOM 900
135 LASALLE STREET
CHICAGO, ILLINOIS 60603

UNITED STATES RECEIVING OFFICE (RO/US)

INVITATION TO CORRECT DEFECTS
IN THE INTERNATIONAL APPLICATION
Issued pursuant to PCT Article 14(1)²

DATE OF MAILING BY THE RECEIVING OFFICE

17 OCT 1991

APPLICANT'S OR AGENT'S FILE REFERENCE¹

51247

IDENTIFICATION OF THE INTERNATIONAL APPLICATION

INTERNATIONAL APPLICATION NUMBER

INTERNATIONAL FILING DATE

PCT/US91/02311

03 APRIL 1991³

APPLICANT (name)

THE SALK INSTITUTE BIOTECHNOLOGY/INDUSTRIAL ASSOCIATES, INC.

INVITATION

This receiving Office has found the following defects in the above-identified international application:

1. As to signature,³ the request part of the international application:

(a) was not signed
(b) was not signed by all the applicants
(c) was signed by what appears to be a purported agent but the latter cannot be considered as an agent since the said international application was not accompanied by a power of attorney appointing the purported agent.
(d) other (specify) *A power of the inventor/applicant is requested*

2. As to indications concerning the applicant, the request part of the international application:

(a) does not properly indicate his/her name⁴ (specify)
(b) does not indicate his/her address⁴
(c) does not properly indicate his/her address⁵ (specify)
(d) does not indicate his/her nationality^{4 & 6}
(e) does not indicate his/her residence^{4 & 7}
(f) other (specify)

3. The international application

does not contain an indication of the title of the invention⁸

4. The international application

does not contain an abstract⁹

5. As to the prescribed physical requirements of the international application¹⁰

(a) defects exist in the presentation of the text matter as specified in Annex A to the present invitation
(b) defects exist in the presentation of the drawings as specified in Annex B to the present invitation

(INVITATION continued on the following page)

INTERNATIONAL APPLICATION NUMBER

PCT/US91/0 23111

INVITATION (Continued)

Further specification of defects:

THE APPLICANT IS HEREBY INVITED TO CORRECT THE INTERNATIONAL APPLICATION WITHIN A TIME LIMIT OF one (one) (MONTHS).¹¹ FAILURE TO DO SO SHALL RESULT IN THE INTERNATIONAL APPLICATION BEING CONSIDERED WITHDRAWN.¹²

Computation of the time limit starts on the day following the date of mailing of this invitation.¹³ Within this time limit the corrections have to reach this receiving Office.

Any correction offered to this receiving Office may be stated in a letter provided that the correction is of such a nature that it can be transferred from the letter to the record copy without adversely affecting the clarity and the direct reproducibility of the sheet on to which the correction is to be transferred; otherwise, the applicant shall be required to submit a replacement sheet embodying the correction and the letter accompanying the replacement sheet shall draw attention to the differences between the replaced sheet and the replacement sheet.

For correction of a lack of signature the attached copy of the Request form must be signed and returned to the RO/US. (Administrative Instructions, Section 316)

A copy of this invitation will be sent to the International Searching Authority

A copy of this invitation will be sent to the International Bureau

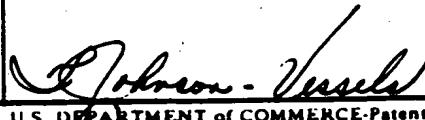
UNITED STATES RECEIVING OFFICE

ADDRESS ONLY:

Commissioner of Patents and Trademarks
Box PCT
Washington, D. C. 20231

AUTHORIZED OFFICER

Attn: RO/US



U.S. DEPARTMENT OF COMMERCE-Patent and Trademark Office